

JULY
1953

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Amateur Radio

JOURNAL OF
THE WIRELESS
INSTITUTE OF
AUSTRALIA

For the Experimenter
and Radio Enthusiast



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AMATEUR RADIO

Published by the Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.I.

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ADVERTISING REPRESENTATIVE:

BEATRICE TOUZEAU,
96 Collins St., Melbourne, C.I.
Telephones: Cent. 3411, MB 2111.

PRINTERS:

"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.I.
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Law Court Chambers, 191 Queen St., Melbourne, C.I., on or before the 8th of each month.

Subscription rate in Australia is 12/- per annum, in advance (post paid) and A15/- in all other countries.

Wireless Institute of Australia
(Victorian Division) Rooms' Phone
Number is FJ 6997.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK3WI: Sundays, 1100 hours EST, 7146 Kc. and 2000 hours EST 50 and 144 Mc. No frequency checks available from VK3WI. Intrastrate working frequency, 7125 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 51.015 and 146.25 Mc. Intrastrate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

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VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5WD by arrangements only on the 7 and 14 Mc. bands.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc. and 146.5 Mc. No frequency checks are available.

EDITORIAL



LET US NOT FORGET

As the years roll by and the early activities of Amateur Radio with its little known phenomena, its tradition and its scientifically romantic attributes recede into the dimming mists of the past, we are apt to forget those who have past beyond the vale; forget what they stood for and the codes under which they conducted our unique hobby and preserved it for us.

It is not that in forgetting all the past the youngest of us is committing any great "sin" because in a scientifically progressing world there is little room for sentimental thinking that may obscure our more mature judgment and endanger the existence of our world instituted and internationally recognised radio service. But—and it is a big but—the ethics of Amateur Radio really do mean something to each and every one of us and do tend to become forgotten as the older of us pass on and the—shall we say—"newly initiated"—carry on in our stead.

Next month when the W.I.A. conducts its annual Remembrance Day Contest, we shall be remembering those who have passed to the great beyond, particularly those who paid the supreme sacrifice in the cause of defending their country against aggressor nations in two world wars.

These are the men who founded our hobby on a rock designed to stand firm forever, to withstand the tests of time and to maintain for those who followed on in the years after, a hobby inculcating everything that democratic freedom of speech and action could afford.

Let us not forget these valiant members, once so proud to be members of our ranks; let us particularly remember them all during the Remembrance Day Contest; and above all, let us keep ever to the forefront of our minds the ethics and spirit of our great hobby—the Amateurs' Code:—

1. The Amateur is Gentlemanly.
He never knowingly uses the air for his own amusement in such a way as to lessen the pleasure of others. He abides by the terms of his license.
2. The Amateur is Loyal to his Society.
3. The Amateur is Progressive.
He keeps his station ahead of science. It is built well and efficiently. His operating practice is clean and regular.
4. The Amateur is Friendly.
Slow and patient sending when requested, friendly advice and counsel to the beginner.
5. The Amateur is Balanced.
Radio is his hobby. He never allows it to interfere with any of the duties he owes to his home, his job, his school or his community.
6. The Amateur is Patriotic.
His knowledge and his station are always ready for the service of his country and if necessary his community.

LET US NOT FORGET.

FEDERAL EXECUTIVE.

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Practical Three Element 14 Mc. Rotary Beam

BY A. E. WILLIAMS,* VK5BO

IT has often been said that a decent beam antenna will do as much for a signal as an added 100 watts. Practical results over the past four years with various beam antennae have proved to the writer's satisfaction that a beam does help the signal along.

When it was decided that the time had come to get rid of the old full wave Zepp that had done good work for many years, the writer found surprisingly little information on beams of a practical nature available in Australian radio papers. This description may therefore help someone looking for such information.

LOCATION

The final design will be largely influenced by the surrounding location. If fortunate, you may have ample room for a wide spaced beam. In most instances, however, the described close-spaced array will be about as big as convenient for the average home block. Erect the tower as near as possible to your radio room to obviate necessity for long leads to the rotating motor, etc.

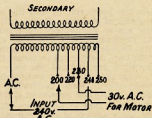
TOWER

Steel piping makes a good tower, but of course, is weighty, both in a physical and financial sense. If you chase around some of the chemical works you may be lucky enough to obtain some rejected piping at low cost as the writer did. Whatever material you chose to use, it is better to spend an extra couple of pounds in the first instance than to

have the heart-breaking job of sorting out the wreckage after the first gale wind.

Make provision for means of climbing to the head of the tower and at the head provide a platform which will allow you to stand there to do any work required on the motor or leads. The writer overlooked this point and now finds that he is cramped for room to work.

The tower is 40 ft. high—10 ft. wide between legs at base tapering to 2 ft. at top and is bolted by means of flanges on the bottom of each pipe to railway line sleepers sunk three feet under ground.



Note.—A very heavy transformer would be needed to avoid overheating.—Technical Editor.

ELEMENTS

Here you have several materials to select from: duralium, square section aluminium, conduit, steel tubing, etc. Electrically welded steel tubing of 18 gauge was selected for reasons of economy and because it is readily obtainable. Six lengths each 19-20 ft. of 1 inch tubing are required.

The spacing between elements as given was found to give the best results for forward gain. Back-to-front ratio was not given much consideration by the writer as due to geographical location, VK5 has not much behind it to worry about when QSOing short route.

Give the tubing several coats of paint, aluminium was used in this case, for protection against rust. It is surprising how rust soon eats its way through. For the same reason, seal the ends of the tubing with plugs of wood and paint well. Plastic cement is a good sealer.

A support to carry the elements is your next job. The design indicated is made up of 3" x 1" Oregon planed all round and bolted together. The heavy boom to carry the element supports is a piece of 10" x 1 1/2" Jarrah, really heavy to handle, but should be good for many years' service. You may have other ideas to lighten this section, the writer prefers ruggedness. There is no sign of sag after three years' service.

The director and reflector are both directly mounted onto their supports without insulators. The radiator is mounted on four 3" stand-off insulators. No doubt it would be an improvement

to have the director and reflector on insulators also, but no adverse effect has been noted by not doing so, even in wet weather.

As each element comprises two lengths of tubing, joining them (director and reflector only) was done by means of ferrules made to fit over ends and then soldering all together. The ferrules or sleeves were made of galvanised iron.

Where the tubing is drilled and screwed to the boom, apply a liberal coating of plastic cement before painting over to prevent entry of water inside tubing, causing internal rust.

ROTOR

To my way of thinking after having tried several ideas out, there is only one satisfactory means of rotating the beam, and that is by the use of a motor—in this case a propeller feathering motor obtained ex-disposals.

It is ideally geared to something like 7,000 to 1 which, of course, prevents any movement in the wind; it is compact and can be driven clockwise or anticlockwise by means of two switches. Voltage required is 28-30 volts a.c. or d.c. at something like 5 amps, and this is obtained by taking the voltage off the h.v. transformer primary (refer Fig. 3).

Suppression of "hash" is effectively done by wiring 0.002 uF. mica condensers from the brush to the motor casing.

The beam rotates at about three-quarters of a revolution a minute. This could be quickened, but it would mean removing some of the gear wheels inside the motor—quite a job and requiring some mechanical knowledge.

Ways and means of mounting the motor to the tower and to the boom proved quite a headache. Fig. 4 shows a sketch of the one used here. The method used resulted in two sections. The motor holding plate is a piece of mild steel with a hole cut out in the centre to take the motor which is bolted to it. The motor is already conveniently drilled. The plate is then bolted to the

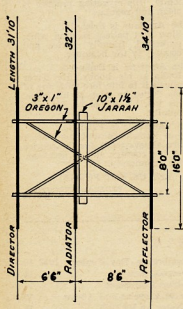


Fig. 2

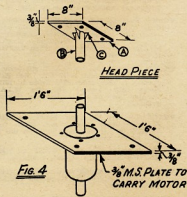


Fig. 4

* 31 May Terrace, Ottaway, Rosewater, S.A.

top of the tower. The headpiece for joining the boom to the motor is (A) a piece of $\frac{1}{2}$ " M.S. plate drilled in four corners to take $\frac{1}{2}$ " bolts for fixing to boom. In the centre of this plate have welded a 10" length of water piping (B) supported by four right angle sections of M.S. welded to it (C).

On the bevel gear of the motor also weld a 9" length of piping of a diameter selected to fit over the bevel gear. The diameter of the other length of piping (B) is selected to fit over the piping welded to the motor. This idea allows the headpiece to be bolted to the boom on the ground and the whole array to be lifted onto the motor in one section.

Two holes to take $\frac{1}{2}$ " bolts were then drilled through both lengths of piping and bolts inserted to lock the whole together.

FEEDERS

A satisfactory feed system was found to be a quarter wave matching section 15' 3" of 70 ohm co-axial cable, one end of which is soldered to the central ends of the two lengths of tubing comprising the radiator and this liberally sealed off with plastic cement. The other end of the co-ax is joined to a 500 ohm open wire line running to the transmitter.

ERECTION

The tower was built from the ground upwards. The stays are also piping with ends flattened and drilled to allow bolting to the brackets welded to the legs.

The array was constructed on the ground. First the boom and elements were assembled and supported on a rest, sea-saw fashion to obtain the necessary point of balance at which point the heavy piece of Jarrah supporting the array was bolted. The whole assembly was then well painted.

When you want to get the array onto your tower, if possible, get help from a couple of rigger friends. If you cannot do so, then obtain a 20 ft. length of 3" x 3" timber and fix it at the top of the tower to one side. At the top of the pole fix a block and tackle and ropes. One man can handle the lifting from the ground and two men are required at the top of the tower to juggle the array into position.

The writer suggests that you obtain assistance from a couple of riggers, they are employed at most works and they will do the job in an hour and will probably assist you with the loan of the necessary gear.

DIRECTION INDICATOR

The writer uses a pair of radio compass indicators ex-disposals. One is mounted in a box on the motor mounting plate and is driven from the beam pivoting shafting by means of a double belt drive made of Luron fishing line. It is necessary to have a small grooved pulley turned up the same diameter as the outside diameter of the piping. While not absolutely trouble free, it does quite a good job and does not slip.

Which Are You?

The two kinds of people on earth I mean
Are the people who lift and the people who lean.
Wherever you go you will find the world's masses
Are divided in just these two classes.

And oddly enough, you will find, too, it seems
There is only one lifter to twenty who lean.
In which class are you? Are you easing the load
Of overtaxed lifters who toil down the road?
Or are you a leaner who lets others bear
Your portion of labour and worry and care?

—Author Unknown.
(Inserted by Federal Executive.)

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W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

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Transmitters altered for Bush Fire and Fishing Boat Work.

CRYSTALS, as illustrated, 40 or 80 mc, AT or BT cut. Accuracy 0.02% of your specified frequency, £2/12/6 each.

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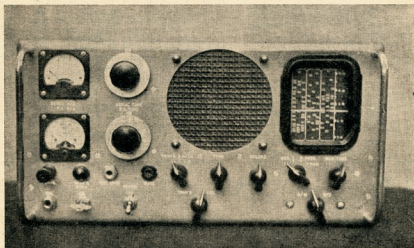
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AMATEUR TELEVISION

PART ONE

BY E. CORNELIUS,* VK6EC

"This fascinating thing—Television!" I borrow the opening remark of George Hutton, which captured the interest of his listeners at an I.R.E. lecture recently delivered in Perth.

And it is fascinating, not only to read about, but to do —.

This series deals with television from the experimenter's viewpoint, and I hope to impart perhaps a little of the absorbing interest that I have found in (for Australia) this new branch of the art.

The transmission of t.v. signals by Amateurs is prohibited in Australia, but that does not greatly reduce the interest and the scope of closed circuit t.v. The complexity of the video side is sufficient too, to occupy a great deal of time, and equipment.

On the principle that sooner or later, broadcast and industrial t.v. will be with us, I decided to find out what I could. The standard text books and technical articles deal fairly fully with reception and receivers, but there is far less on camera, studio and transmitter equipment. A point was reached where theory had to be balanced by practice, and I decided to build a closed circuit system.

The following general rules were followed:—

1. The system was to be all electronic.
2. Standard broadcast v. practice was to be adhered to, within the limits of the equipment available.
3. A true t.v. circuit was to be used, with one single channel to take picture, sync, and blanking signals from transmitting equipment to receiving equipment.

I found certain limitations, which largely controlled the equipment used, namely—

1. Cost. Disposals gear helped, but standard camera tubes were out of the question. Standard receiving type components were used almost throughout, notable exceptions being dealt with later.
2. Complexity. The limitation here is the range and accuracy of the test, measurement and alignment gear available.
3. Inherent limitations of available equipment. This controlled the number of lines, and the detail obtained.

A working system is now in operation, using 210 lines, 25 frames sequential scanning, using a flying spot scanner, multiplier photocell and amplifiers, sync. signal generator, and sync. and blanking mixer. The video output is fed by co-axial cable to a video receiver using a five inch c.r.t. for picture display.

The picture is rock steady, and has excellent detail for its size—about 4" x 3".

A new sync. signal generator is under construction for 245 lines, 50 fields, 25 frames interlaced scanning, and this will be described later in this series.

Following on the general theoretical articles on Television in past issues of "Amateur Radio," here is a series of articles on a practical Amateur set-up. Using the wired television technique, it is possible, with this equipment, to obtain reliable practical experience on the circuits involved, for future use.

ELEMENTS OF A TELEVISION SYSTEM

To transmit a picture through a single channel, the picture must first be divided into elements of shades of grey, and signals corresponding to these elements transmitted in sequence. Each element must be small enough to maintain the finest detail required of the picture.

At the receiver, the picture currents corresponding to these elements are transformed again into corresponding degrees of light and shade, and re-assembled in the same order as the original picture.

For convenience, the picture is divided into narrow horizontal strips, or lines, which are transmitted in sequence, the whole picture being repeated at a rate sufficient to avoid visible flicker.

With my equipment, the scene or object (in darkness) is scanned by a flying spot of light from a c.r.t., and the light transmitted through a transparency or reflected from an object is converted to a picture signal by a photocell. This is amplified, and after blanking and synchronising signals are added, becomes a standard type video signal.

In the flying spot scanner used, the limit due to line overlap (spot size), is of the order of 250 lines. To have equal resolution to the 210 vertically stacked strips, each line should be able to resolve 200 to 250 elements (changes of light and shade) along the length of the line. Allowing one black and white element to correspond to one cycle, the pix bandwidth required is from 25 cycles—the picture repetition rate—to a frequency found from—

pictures/sec. x lines/picture x $\frac{1}{2}$ elements/line x height:width ratio.

For my standards this becomes—

$$25 \times 210 \times 100 \times 4/3 = 0.7 \text{ Mc.}$$

In practice, a response to 500 Kc. would have been adequate, but to allow for future improvement, the following tentative standards were adopted—

- 210 lines per picture.
- 25 frames per second.
- Video bandwidth—1.0 Mc.
- Scanning—sequential.

SCANNING

To scan a transparency it was necessary to have a fine spot of light traversing the picture horizontally at the rate of 5250 lines per second, and

vertically 25 times per second. Under these conditions, the spot traces a raster with 210 lines vertically one below the other. The length of each line was made four units, and the height of the 210 lines was made 3 units, to obtain the 4:3 aspect ratio.

The light transmitted through the transparency—mounted against the screen of the flying spot scanner—varies in accordance with the translucency of the picture at each point, and a photocell and amplifier deliver currents proportional to the light received at each instant.

These amplified currents are made to modulate the intensity of a light source—a cathode ray tube—which provides a spot of light moving in exact synchronism with the scanning spot.

To scan an object or person, the raster is focussed on to the plane of the object by a lens, and the light reflected (much less than with the transparency) is detected by the photocell as before.

BASIC EQUIPMENT

The five basic items of equipment are:—

- (i.) A flying spot scanner;
- (ii.) A light sensitive device;
- (iii.) A synchronising system;
- (iv.) A reconstituting device;
- (v.) A mixer to mix picture, blanking and sync. signals.

(i.) The flying spot scanner used is a c.r.t. with a short persistence white screen. Two time bases and deflection amplifiers are used to develop a raster approx. 4" x 3". This has 210 horizontal lines, and is repeated 25 times per second.

The tube is a VCRI12, run at an e.h.t. of 3,200 volts. The light intensity is high for a cathode ray tube, but very low by general illumination standards. Other suitable tubes are the ACR1, CV954 and possibly Cosor 20K, CV1112, CV959, NC5, NC10, ACR2, and 5BD4.

(ii.) The light sensitive device is a 931A multiplier photocell, working at 90 volts per dynode stage, and with an anode potential of 125 volts. A one stage preamplifier, and cathode follower, feed pix signals out at a level of about 1 volt peak/peak, to the video amplifier-sync. and blanking mixer. Any multiplier photocell, with suitable spectral sensitivity should be satisfactory here.

(iii.) The synchronising device is essential to keep the two moving spots (that of the scanner, and that of the picture tube) in exact synchronism.

For the comparatively low brilliance of the 5BP1 picture tube, 25 frames per second is adequate to avoid flicker. For moving objects, or higher brilliance, a higher field rate is advisable, and interlaced scanning will provide this without increase in bandwidth.

It does, however, greatly increase the complexity of the synchronising system. For this reason, sequential scanning was chosen for initial experiments, but

*C/o. Station 6WA, Wagin, Western Australia.

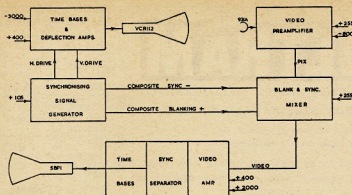


Fig. 1—Block Schematic of the Complete Equipment.

and vertical blanking signal received from the synchronising signal generator.

Another video stage is used to erect sync. pulses on these pedestals, combined sync. being derived also from the synchronising signal generator. The output of the mixer is a composite video signal, of about 2 volts peak/peak, which is fed by coaxial line to the receiver.

A monitoring oscillograph across this output permits adjustment of pedestal height (black level), pix signal amplitude (contrast), and sync. pulse amplitude.

Each unit has a separate power supply, making for simplicity of testing, alignment and servicing the individual units.

(To be continued)

will be replaced by interlacing, when the new synchronising signal generator is completed.

In line, therefore, with commercial practice, the synchronising signal generator was designed to provide the following signals:—

1. A line synchronising pulse of duration of 1/20 of the line period, to synchronise both line time bases.
2. A frame synchronising pulse of 1/40 of the frame period (5 lines), to synchronise both frame time bases.
3. A line blanking pulse, of 1/10 the line period to black out the retrace of the picture tube between lines.
4. A frame blanking pulse of 1/20 of the frame period, to black out the retrace of the picture tube between frames.

Pulses Nos. 3 and 4 had to be longer in duration than Nos. 1 and 2 to ensure that the retrace was fully complete, while the c.r.t. spot was extinguished, and to commence in advance of the synchronising pulses to avoid the possibility of the retrace commencing before blanking.

A locked line/frame frequency ratio was chosen so that lines of a picture would be stationary, to simplify oscillographic test and measurement. Frequency division from the line rate of 5250 p.p.s. was necessary, as multiplication from the 25 p.p.s., while giving an average frequency at the multiple, allows the instantaneous frequency to vary.

(iv.) The reconstituting device consists of a 5BP1 cathode ray tube, with associated time bases and deflection amplifiers. The composite video signal from the mixer is amplified by the video amplifier, and modulates the beam intensity.

A synchronising separator extracts sync. information from the composite signal, separates vertical from horizontal sync., and feeds it to the appropriate time bases for locking.

The blanking signals in the composite video, blank the return trace in both vertical and horizontal directions.

(v.) The mixer amplifies the pix signal from the photocell preamplifier in a video amplifier and inserts blanking pedestals from the combined horizontal

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Design Data for use with Band-Switched Exciters

Prepared from information compiled by R. G. LANE, G2BYA

The following details enable Wide-Band Couplers to be constructed for use with a wide range of valves suitable for the exciter stages of modern Amateur transmitters.

The Couplers can conveniently be made by modifying the 85 Kc. i.f. transformers used in the Command Receivers, type BC453. If these are used, the earthing strap to the rotor of the secondary trimmer must be removed and the two 175 pF. "button" condensers should be removed.

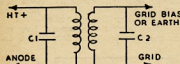
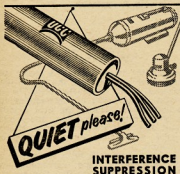


Fig. 1.—Circuit Diagram of Couplers. C1 and C2 are 4.5/17 pF. Trimmers.

However, if these i.f. transformers are not available, satisfactory Couplers can be made from the details provided, using the same winding data.

Table 1 gives two sets of figures for each valve, viz. the primary figures (Pri.) and the secondary figures (Sec.). The Couplers should be designed to match the valves with which they will be used; the primary winding should contain the number of turns specified against "Pri." for the valve driving the Coupler, whilst the secondary winding should be wound with the number of turns shown against "Sec." for the valve which follows the Coupler.



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NOTES

If BC453 i.f. transformers are used the existing trimmers are suitable for C1 and C2 (see Fig. 1).

The 80 metre Coupler is layer or wave wound (shown in Fig. 2), each winding being $\frac{1}{4}$ inch wide.

The 40, 20, 15 and 10 metre Couplers require single-layer close-wound coils on a 0.45 inch diameter former. The "earthy" (i.e. the HT+ and GB— or Earth) ends of the two windings should be adjacent.

The windings of all the Couplers should be separated by the distance (S) shown at the foot of Table 1.

The coils are to be wound as described using the following wire:—

80 metres	....	38 s.w.g.	D.S.C.
40	....	40	" Enamel
20	....	32	" "
15	....	26	" "
10	....	24	" "

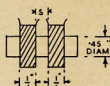


Fig. 2.—Winding details for 80 Metre Coupler.

ALIGNMENT

There are three possible ways of lining up the Wide-Band Couplers—

(i.) The best way is to use a wobulator and c.r.o. and fiddle until you get flat transmission across the band.

(ii.) Is to disconnect C1 and resonate the secondary with C2 to the middle of the band, then disconnect C2 (without varying it) and connect C1 to the primary and resonate it to the middle of the band, and then put C2 back.

			80 Mx		40 Mx		20 Mx		15 Mx		10 Mx	
			uH.	T.	uH.	T.	uH.	T.	uH.	T.	uH.	T.
6AG7	Pri.		78.6	73	20.5	48	5.3	24½	2.36	16½	1.26	12
	Sec.		65.2	67	17.2	44	4.4	22½	1.94	15	1.05	11
6AM6	Pri.		94.0	80	24.5	53	6.25	26½	2.8	17½	1.48	12½
	Sec.		78.5	73	20.5	48	5.3	24½	2.36	16½	1.26	11½
6AQ5	Pri.		83.5	76	21.6	49½	5.6	25½	2.5	16½	1.32	12½
	Sec.		78.5	73	20.4	48	5.25	24½	2.35	16½	1.26	11½
6AU6	Pri.		86.8	77	22.6	50½	5.8	25½	2.6	17	1.37	12½
	Sec.		85.0	76	22.0	50	5.7	25½	2.54	17	1.35	12½
6BW6	Pri.		78.5	73	20.5	48	5.3	24½	2.36	16½	1.26	11½
	Sec.		76.0	72	19.7	47	5.1	24	2.28	16	1.22	11½
6CH6	Pri.		86.8	77	22.6	50½	5.8	25½	2.6	17	1.37	12½
	Sec.		82.5	66	16.8	43½	4.2	22	1.89	14½	1.0	10½
6F12	Pri.		88.0	78	23.0	51	5.9	25½	2.63	17½	1.4	12½
	Sec.		74.5	71	19.5	47	5.0	23½	2.24	15½	1.2	11½
6F13	Pri.		84.0	76	21.8	49½	5.6	25	2.5	16½	1.33	12½
	Sec.		69.5	69	18.3	45½	4.65	23	2.08	15½	1.12	11½
6F14	Pri.		86.0	77	22.2	50	5.72	25½	2.56	17	1.36	12½
	Sec.		70.0	69	19.4	47	4.7	23	2.1	15½	1.13	11½
6SG7 & 6SH7	Pri.		80.0	74	20.0	47½	5.38	24½	2.4	16½	1.28	12
	Sec.		76.0	72	19.7	47	5.1	24	2.28	16	1.22	11½
6V6	Pri.		69.5	69	18.3	45½	4.65	23	2.08	15½	1.12	11½
	Sec.		72.0	70	18.8	46	4.82	23½	2.15	15½	1.16	11½
EF50	Pri.		86.0	77	22.5	50½	5.75	25½	2.57	17	1.36	12½
	Sec.		76.5	72	20.0	47½	5.1	24	2.3	16	1.23	11½
EF91	Pri.		100.0	83	26.0	54½	6.65	27½	2.96	18	1.58	13½
	Sec.		80.0	74	20.0	47½	5.38	24½	2.4	16½	1.28	12
EL91	Pri.		94.0	80	24.5	53	6.25	26½	2.8	17½	1.48	12½
	Sec.		90.0	79	23.4	51½	5.97	26	2.67	17½	1.42	12½

Spacing between Windings (S)

3/16"

5/16"

3/8"

1/2"

1/4"

Table 1.

(T = Number of Turns)

(iii.) Or treat it the same way as an over-coupled i.f. transformer, i.e. connect resistors across primary and secondary (say 50,000 ohms) so as to reduce the coupling below critical and then adjust C1 and C2 for maximum response in the middle of the band. Remember to remove the damping resistors when finished.

VALVES SUITABLE FOR FREQUENCY MULTIPLIERS

There are two conflicting requirements for multiplier operation when wide-band characteristics are desired. In the first place the valve should have low input and output capacities so that

high LC ratios can be realised, whilst secondly a high mutual conductance is desirable for efficient production of harmonics without large grid driving voltages.

In Table 2 the characteristics of a number of suitable valves (in the 6.3v. heater range) are given, and it will be seen that the types most nearly meeting the above requirements are—

6F14, EF91, 6F13, 6F12
6AM6, EF50, and 6AU6

To improve performance it is permissible to operate the valve with a higher anode voltage and limit the anode dissipation by reducing the screen grid voltage.

Valve	CV No.	Anode Volts	Screen Grid Volts	gm Ma/V.	C. (in) pF.	C. (out) pF.	Anode Dissip'n (Watts)	Heater Current (Amp.)
6AG7	1882	300	300	11.0	13.0	7.5	9.0	0.65
6AM6		300	300	7.5	7.5	3.2	3.0	0.3
6AQ5	1862	250	250	4.1	7.6	6.0	12.0	0.45
6AU6	2524	300	150	5.2	5.5	5.0	3.0	0.3
6BW6		350	310	4.0	8.5	7.5	13.2	0.45
6CH6		275	275	14.0	14.0	5.0	12.0	0.75
6F12	138	250	250	7.5	9.0	4.6	2.5	0.3
6F13	1839	250	250	9.0	11.0	5.9	3.5	0.35
6F14	1919	250	250	10.6	10.8	5.3	4.0	0.35
6SG7	1978	300	200	4.0	8.5	7.0	3.0	0.3
6SH7	594	250	150	4.9	8.5	7.0	3.0	0.3
6V6	510	300	285	4.0	10.0	11.0	12.0	0.45
EF50	1091	250	250	6.5	8.3	5.2	3.0	0.3
EF91		250	250	7.6	7.0	2.0	2.5	0.3
EL91		250	250	2.6	4.2	3.2	4.0	0.2

Table 2.

STABILIZING THAT I.F. CHANNEL

Some years ago I was troubled with instability in a receiver I was building and in spite of thorough decoupling it refused to be tamed.

In discussing this with George Neilson, one of our most experienced receiver men in the VK3 Division, he gave me two hints which corrected the receiver instability and which, in wiring other receivers, broadcast as well as Amateur, has saved me hours of searching for causes of instability. It is simply a precaution to be taken in wiring and although some readers will say they would watch it naturally, the majority I'm sure will be like me—they didn't think of it until it was pointed out.

It concerns the a.v.c. line. The most common practice these days is to use one diode for a.v.c. and the other diode for rectification and audio output. When this is done a condenser of 50-100 pF. is connected between the last i.f. amplifier plate and the a.v.c. diode. From that point a load resistor connects either to ground or to a small fixed negative bias, and the other resistor connects to the a.v.c. line as a decoupler; note that word decoupler, and cast your mind back; just whereabouts along the a.v.c. line did you place it, the last time you wired a receiver?

It was pointed out to me this way. The plate of the last i.f. valve is the hottest point in the receiver. It has the full lift of the i.f. stage, the stage with the greatest gain in the receiver, and therefore the lead to the primary winding on the i.f. transformer, the coupling through the condenser to the diode, and any leads to the two resistors going to the a.v.c. line and earth, are hot.

The remedy is simple, firstly tuck the condenser well away from other wiring, particularly the grid lead to the i.f. stage, keep the leads short, and then mount the two resistors mentioned previously right at the diode pin. They act as r.f. chokes and the a.v.c. line will be cold from the resistors on.

In my case there was a 2" lead from the diode pin to the decoupling resistor on the a.v.c. line. This hot section of a.v.c. line was 1½" from the grid lead of the i.f. amplifier. Feedback occurred until these leads were moved 2½" apart.

A further precaution would be to run the a.v.c. line in shielded wire, although I have found that this is not necessary if the previously mentioned precautions have been carried out.

The second hint concerned b.c. sets mostly. In this case it was found that there was a certain critical length of aerial lead where the converter stage would oscillate. The reason is that strong capacities in the aerial lead and the high impedance aerial primary winding resonate in the i.f. range. This can be cured by connecting a small capacity across the winding to resonate it below the i.f. frequency.—VK3VZ.

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 3AWZ—W. M. Zimmer, 70 Skene St., New Town, Geelong.
Queensland
 4EJ—J. G. MacIver, 21 Hurd Terrace, Morning-side, Brisbane.

South Australia

- 5NR—L. K. Ness, 17 Haigh St., Broadview.
 5RI—R. M. Gebhardt, Station: Mount Bryan; Postal: P.O. Box 16, Mount Bryan.

Western Australia

- 6KJ—B. H. Gass, Station: Lot 96, Wakefield Cres., Albany; Postal: c/o A. K. Collins, Sterling Terrace, Albany.

Tasmania

- 7BR—H. J. Bracken, 41 Esplanade, Queenstown.
 7PJ—P. A. Jones, "Brookside," 10 Main Rd., Moonah.
 7PM—P. D. Mulligan, Kilaos.
 7SK—M. D. L. Sidebottom, 534 Mt. Nelson Rd., Mt. Nelson, Hobart.

ALTERATIONS

- VK— New South Wales
 2AC—22 Pitt Street, Sydney.
 2DX—River Street, Macquarie.
 2FY—40 Augusta Road, Pakenham.
 2YG—6 Arunta Street, Marrabundah, A.C.T.
 2MH—23 Jamay Avenue, Horsham.
 2QP—Station: 657 Puncbowl Rd., Puncbowl; Postal: 657 Puncbowl Rd., Puncbowl.
 2AGX—19 Matthew Street, Puncbowl.
 2AYH—6 Kembla Avenue, Chester Hill.
Victoria
 3NW—5 The Grove, South Camberwell.
 3QD—55 Mountain View Road, North Balwyn.
 3VE—65 Mountain View Road, North Balwyn.
 3XJ—60 Teanyon Street, Morlane via Geelong.
 3ZA—40 Lytton Street, Glenroy.
 3ABX—45 Bridge Street, Benalla.
 3ACW—Airport, Mangalore.
 3ACW—19 Kara Street, Frankston.
 3AMR—Flat 1, 9 Lewes Drive, East Malvern.
 3ATX—25 Lewisham Road, Windsor.
 3ANW—Portable; 5 The Grove, South Camberwell.
 3AZO—c/o Mornington Hotel, 36 St. George's Road, North Fitzroy.
Queensland
 4EW—23 Vowles Street, Red Hill.

South Australia

- 5EC—B.C.A. Flying Medical Service, Ceduna.
 5LN—11 Hilton Street, Port Lincoln.
 5MW—Shepherds Hill Road, Eden Hills.
 5SR—3 Glenunga Avenue, Glenunga.
 5WX—31 Meredith Street, Broadview.

- 6BR—4th Street, Bluff Point, Geraldton.

DELETIONS

- Victoria: VKs 3J, 3VK, 3AHP.
 South Australia: VKSPA.
 Terrestrial: VKSML (now operating under VK3AMO).

ERRATUM

- VK3ZU's correct address is Brock St., Euroa.

ERRATUM IN BC348 RECEIVER

ARTICLE

In the article last month on the Double Conversion of a BC348 Receiver, an error is evident in the third paragraph, 9th line. This should read: "the second i.f. tube 6E7," and not 6K7.

TECHNICAL OPINIONS

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

9 Esplanade, Bellville, Tas.

Editor "A.R." Dear Sir,

Being the Delegate of one of the Divisions who passed the letter to the authorized P.E. to make representations to the P.M.G. Dept. which resulted in the granting of the Technicians Licence, I would like to reply to Mr. Treblecock's letter in June, "A.R."

If Mr. Treblecock had taken the trouble to familiarise himself with all aspects, I think he would not have written the letter. There are not many Hams in Australia who are more keen to see Morse Code used to the utmost than myself, and not many now who have been longer at the game than I, but I am not so bigotted that I cannot see that Amateur Radio would benefit from the activities of advanced technicians who are interested in v.h.f. and u.h.f. operation, where phone is used almost exclusively, and who feel that they cannot spare the time necessary to master the Morse Code. The question that they cannot master the code does not arise.

These men will be valuable additions to our ranks, and perhaps in the future may become so keen Amateur Radio that they may try to find the time to learn the code so that they may use bands other than the v.h.f. and u.h.f. circuits which they are interested in.

I am sure that Mr. Treblecock will agree that the code cannot be mastered by anyone, much less a baboon, in just a few hours.

—BOB O'MAY, VKTOM,
 Fed. Councillor for VK7.

"Oakleigh," Yerrinbool, N.S.W.

Editor "A.R." Dear Sir,

Having read in the June issue of "Amateur Radio" a letter referring to the announcement that the W.I.A. was happy to announce that Technicians Licences were to be issued to various readers of the magazine, I believe reference to the matter on page 13 of the May issue, and as a member of the W.I.A. should like to voice my disapproval of such a step.

It seems to me that "one" who can master the Morse Code is sadly lacking in both ability and will to learn, for even my dog will respond to various long and short whistles! Is it not a fact that the correct modulation of radio frequency signal is a far more complex procedure than the ability to make and break a circuit without "chirp" or "click"? Why then, allow these persons this privilege when they lack the ability to master such a simple arrangement of "dots and dashes"?

It was once approached by an individual who was, most probably, too lazy to attempt the Morse Code, and asked if I would, for a fee, attempt the A.O.C.P. examination using his name. Now, I have no doubt that there are many others of this type who will be allowed to join the ranks of "Amateurs," should this type of licence be issued. I believe that such was once a time when it was necessary to prove to the licensing authorities that one had mastered c.w. transmission and reception before one was allowed a phone permit.

I should also like to make one comment on the proposed Novice Licence: Do not our limited bands contain enough "luxury" commissions now from A.O.C.P. holders, without inviting a far larger percentage from people with even less technical knowledge and ability?

I feel that rather than allow a decline in the standard required to obtain the A.O.C.P. the standard should be raised, in view of such modernity as f.m., t.v. and pulse.

—RONALD F. HAMBRIDGE, VK2HB,
 Assoc. I.R.E. Fellow B.I.S.

4th June, 1953

Editor "A.R." Dear Sir,

The observations made by your correspondent, Mr. Treblecock in the June issue require some comment if only to clarify the position, I would like to see the use of Morse Code in communication services, Amateur or otherwise.

Before proceeding, however, I must acknowledge Treblecock's interest in and association with Amateur Radio over many years. Secondly, I must clarify my own position relative to Morse Code by stating that I use it fre-

quently, not so much because I like it, but because circumstances demand it. A keen observer will notice that there appears to be a decreasing interest in Amateur Radio and the average age of Amateurs is increasing.

My own observations justify the belief that the younger generation are not greatly interested as they were in the late 30's and early 30's. Least are they interested in Morse Code as a means of communication. This state of affairs exists in spite of the fact that a number of massed produced operators and technicians in our midst after World War II.

The position to which Morse Code has been relegated I think is purely evolutionary and is confirmed by the declining use of it by the Armed Forces, Civil Aviation and the Post Office. Morse has been replaced by more speedy automatic systems and telephony.

Men with suitable technical qualifications must be admitted into the Amateur ranks, they are badly needed and can contribute much to the progress of our hobby. We cannot afford to be smug about Morse Code which, of necessity, have its place in communication service for some time to come.

—N. D. CARPENTER, VK2RK.

107 Templeton St., Wangaratta.

Editor "A.R." Dear Sir,

In June issue of "A.R." under the heading "Correspondence," Eric W. Treblecock asked if any other reader would care to comment on the subject of "Licences for persons who cannot master the Morse Code."

After reading Eric's letter, I felt that I would like to comment on the above subject. I have held my A.O.C.P. for the past 15 years, but in 1948 I lost the use of my right hand and wrist (rheumatoid-arthritis) and therefore could no longer manage the Morse key; not that I ever had much time for the code as I have always found audio much more interesting.

There may be others keenly interested in radio who suffer from some disability which prevents them from mastering the code and obtaining their A.O.C.P. although I believe the P.M.G.'s Dept. do make allowances for these chaps. However, there are some who are in excellent health and physical condition who just cannot master the code, possibly for the same reason as that which prevents some people from mastering a musical instrument even though they practice hard enough, and I for one see no reason why these keen radio enthusiasts are not allowed to enjoy their hobby in the same way as we do.

I agree with Eric that there are plenty of individuals with and without "tickets" who have no interest in Morse Code, but I personally think that those who like it should be allowed to have it and those who don't like it should not have it forced upon them.

Eric's opinion is entirely wrong when he states that there are some Hams who have no right to call themselves Amateur Radio Operators, for after all there are many telegraphists in the world who know nothing about radio but who, as far as I'm concerned, may prefer to leave the dots and dashes to radar and thoroughly enjoy my Ham Radio using phone, so why shouldn't others if they so desire.

—HOWARD G. WOHLERS, VK3YY.

— . . . —

AMATEUR BANDS AVAILABLE

Owing to the ambiguity of the copy supplied, the 14 and 21 Mc. bands were listed incorrectly as temporary allocations on page 13 of the last issue. The corrected frequencies allotted to Amateurs are as follows:—

*1.84—1.86 Mc.	*288—296 Mc.
3.5—3.8 "	" 576—585 "
7—7.15 "	" 1,215—1,300 "
14—14.35 "	" 2,300—2,450 "
21—21.45 "	" 5,650—5,850 "
26.96—27.23 "	" 10,000—10,500 "
28—30 "	" 21,000—22,000 "
50—54 "	" 30,000 Mc. and "
144—148 "	" Above.

*Available for emergency network purposes only. Normal Amateur activities are not permitted in this band.

†Temporary allocations.

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1636-3H	200-220-230-240	300	80	2 x 6.3v-2a; 5v-3a	42/9
1335-9H	220-220-230-240	300	120	2 x 6.3v-2a; 5v-3a	52/3
1356-3H	200-220-230-240	400	150	5v-3a; 2.5v-5a; 6.3v-4a	70/-
1380-3H	200-220-230-240	450	200	2 x 6.3v-2a; 5v-3a	85/-
1371-8	200-220-230-240	500-600-750	300		150/-
		650-1000			
1400-19	200-220-230-240	565-500-425	250	2 x 6.3v-3a; 2 x 2.5v-3a; 5v-3a	110/-
1643-23	200 or 230 or 240	—	—	6.3v Tap 5v-2a (500v insul.)	17/6
1525-21	200-230-240	—	—	2.5v-10a (1000v insul.)	47/6
1305-22	200-220-230-240	—	—	2.5v-10a (3000v insul.)	75/-

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967-1A	35	20	150	200	1000	46/-
956-1A	30	20	200	160	1000	57/9
1011-1A	30	15	250	160	1000	58/6
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FEET, BICYCLES AND ABBE

NEW SOUTH WALES

Very little news and activity on the 50 Mc. band and only a few stations have been heard. The highlight this month was the one hour scramble on 144 Mc. held on Wednesday, 27th May. The results of the contest are as follows: twenty-one stations active. The winner was Harry 2AJZ with a score of 20 contacts, next came 3QZ with 17. The band was really alive. Results on the 20 Mc. band on 27th and 28th May: 2AJZ and 2WJ within half an hour of the finishing time and was again reported from 2WJ on the 28th and broken down as follows:

During the last few weeks a search party has been organised by the Scouting fraternity. The V.h.f. Division of the W.L.A. stepped into the breach and has taken care of communications. The parties are searching on behalf of the Civil Aviation Dept. for a special unit of D4 aircraft. The communications headquarters are at the Queensland fire watching towers between Cessnock and Wyong. This tower by the way is 80 feet high, with a very nice shack on top, which houses a very good transmitter. It is a Ham's dream! The search area is 24 square miles of heavily wooded, precipitous country. Horrie 2HL7 and Cess Cranon are the Control Station. John 2ATO, who is mobile, is also participating. Most of the gear is operating on 144 Mc. We might say that Horrie has put a lot into this project, not forgetting Cess Cranon's effort.

2EI has completed his new converter. Pleased to hear 2IV back on 144 Mc. also 2GA. Had a contact on Monday, 28th May. 2EI has a very nice signal. 2FD has appeared also on this band. ST signal. 2ASU will be on 144 soon. Keep a look for him. 2AGP is still working again and visited a few shacks. The Newcastle gang have been heard chatting among themselves. A noteworthy arrival on the 144 Mc. band is 2W. Maurice Myers. 2WG will be back with a 674 832 set-up and a super regen rx, but will build something bigger later on. Welcome Maurice.

To Mr. Eric Harold Cox, 2CGU (Arch), of Canberra, go the heartiest congratulations of the V.h.f. Club for recognition of a high Coronation honour of the O.B.E. Arch was honoured for outstanding contributions to journalism in Australia. 144 Mc. for 100 contacts.

There is an arrival on 144 Mc. for 100 contacts. 25 to 30 fellows send out those cards. If you have none, then a piece of cardboard or post card will do, suitably inscribed. Why are these cards so hard to get back? Has yours gone?

C.D.E.N. News.—A number of zone stations are holding regular practice sessions. It seems to be improving operating techniques considerably. However, there is a lot of room for improvement. Another large scale practice is being planned.

2QW Grafton was heard in Casino by 2ADE at good strength. 2ANF Sydney has worked 2JWR on the 20 Mc. band. Ted Howard 2CX. We offer our deepest sympathy: Ted lost his Mother recently, and his Father is not well now. It was pleasing to hear 2X on the band again after a long period. 2XG will be back on 144 Mc. soon. 2VL has put a lot of work into a new portable rig, we hope to hear him soon. Also 2XG has been heard on the 20 Mc. band has logged here at 89 with a new multi-element beam, wait till he puts it up a bit. Ric, ex-2K2AEX, has been heard on 144 Mc. 2XG is now 2G3FTS and operates on 144 Mc. on c.w., also on 20 mX.

Two stations were set up on Mt. Jibralor, one at the base camp operated by 2ALQ, and one in the Jib. 2ALQ was parked at the top of the Jib, each night and was operated by 207. The two stations were about a quarter of a mile apart and the Jib is about 2000 feet. The tx's were 522s running 18 watts input. Three element close-spaced beams were used, consisting of folded dipole fed by a combi-converter. The rx's used were combe converters, one into a 19 and one into a Command at 7 Mc. An AT3 was used on 80 and 40 to test the 20 mX. The camp station worked off 24 volt generators and the one in the car off a 12 volt system. Four 6 volt batteries and two 12 volt batteries in connection with a 300 watt charger kept the power up to the transmitters. Although we had nightly skeds with 2WH (Perth) and 2AJZ (Coolangubella), we had no hear either, but was 54 by 2WH. No DX was worked. Twenty-five stations were worked, and nearly all were 89. The results of the contest are as follows: 1. 207 (Mt. Jibralor), 744.5 pts.; 2. 207 (Mt. Jibralor), 744.5 pts.; 3. 207 (Mt. Jibralor), 744.5 pts.; 4. 207 (Mt. Jibralor), 744.5 pts.; 5. 207 (Mt. Jibralor), 744.5 pts.; 6. 207 (Mt. Jibralor), 744.5 pts.; 7. 207 (Mt. Jibralor), 744.5 pts.; 8. 207 (Mt. Jibralor), 744.5 pts.; 9. 207 (Mt. Jibralor), 744.5 pts.; 10. 207 (Mt. Jibralor), 744.5 pts.; 11. 207 (Mt. Jibralor), 744.5 pts.; 12. 207 (Mt. Jibralor), 744.5 pts.; 13. 207 (Mt. Jibralor), 744.5 pts.; 14. 207 (Mt. Jibralor), 744.5 pts.; 15. 207 (Mt. Jibralor), 744.5 pts.; 16. 207 (Mt. Jibralor), 744.5 pts.; 17. 207 (Mt. Jibralor), 744.5 pts.; 18. 207 (Mt. Jibralor), 744.5 pts.; 19. 207 (Mt. Jibralor), 744.5 pts.; 20. 207 (Mt. Jibralor), 744.5 pts.; 21. 207 (Mt. Jibralor), 744.5 pts.; 22. 207 (Mt. Jibralor), 744.5 pts.; 23. 207 (Mt. Jibralor), 744.5 pts.; 24. 207 (Mt. Jibralor), 744.5 pts.; 25. 207 (Mt. Jibralor), 744.5 pts.; 26. 207 (Mt. Jibralor), 744.5 pts.; 27. 207 (Mt. Jibralor), 744.5 pts.; 28. 207 (Mt. Jibralor), 744.5 pts.; 29. 207 (Mt. 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DX NOTES BY VK7RK*

The month of May seems to have hit new low for my correspondents and, were it not for my "trusty few," this page would shrink to a mere sliver. The weather is just about going through a winter of conditions, theoretically at any rate, as bad as possible, so survive this period with undamped enthusiasm, and, if possible, with a little extra cash tucked on the crest of the wave. Notwithstanding all this, on the infrequent occasions that the bands are available, they are still a pretty good deal available and quite a few calls listed this month would, only a very few years ago, have produced the proverbial "dog pile." The days may be fewer, but the calls are more frequent every week, but just because you have worked a station before doesn't mean he is not now a new station. The old stations are still on the Wa when ZK1 or the FKs open up.

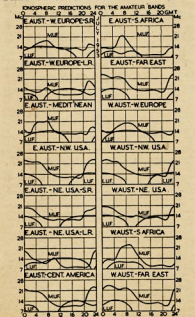
KV4AA, in his DX column in "CQ," suggests that, in view of the difficulty now in obtaining W.A.Z., brought about by the almost impossibility of QSOs in Zones 16-17-18-19, an additional yard stick of DX achievement is needed. Dick suggests that the award be allotted one point for each country and one point for each zone on each of the five major DX bands. Dick suggests the initial award at 300 points to be entitled A.B.C.Z. (All Bands Countries Zones). The additional 100 points at A.B.C.Z. 500. This scheme seems to me to have possibilities, mainly in that it encourages all band operation and that there is always a goal ahead. Should anyone wish to comment, I would be happy to pass it on to KV4AA.

Now for a few doings—3.5 Mc.: ZK1BG has provided an interest here, being heard by BERS195 who also logged VR2CG and Hans 3AHH also worked VK1AF on this band, so Macquarie Island seems to be an all band affair now. We are available here on occasional nights, but a high noise level and the added possibility of b.c.l. precludes much chasing.

7 Mc. has not altered very much. W, VE, KH6, KG6 and an occasional KL7 are at good strength most evenings, in fact the Ws are there during most of the late afternoon. A few Europeans around 0700z but they are not so easy to work. The main Europeans on this band seem to be around 2100z and even though their signals are good then, they present some difficulty to QSO owing to other European QRM.

* 5 Galvin Street, Launceston, Tasmania.

PREDICTION CHART FOR JULY, 1953



An occasional North African at good strength was heard also at this time.

BERSHES heard DXDR, VQKFI, KWGBI, FUSA, VRAZ, DUTSV, ZKIAL, VSPCC, ZKIAL, ZKIAL, ZKIAL, ZKIAL, ZKIAL, HP3FL. All this in addition to 300 Europeans! Eric also comments on the plentiful supply of "South African" calls with the following: KN and WH and lists his first YL VINO, WTRNRM, whose father is W7QSV. Anyone who has been in the area of the Cape knows far the larger percentage of calls are incoming and not two way, but some noted were FASIP, ZKIAL, ZKIAL, ZKIAL, ZKIAL, ZKIAL, ZKIAL, ITITK, SMMARG, CQ6PS, KF4CC, FKBAO, LUSCK, PYUA, DUTSV, KGAAJ, SAHH working with ZKIAL, ZAOU heard HP3FL on phone working 4TN so that I'm sure the northern South Africans are not far from the Cape. 14 Me. has developed into strictly a daylight band and promptly folds up here at 0800z, but I have heard it on the 100m band at times of being on the right spot at the right time. As an example, on an almost dead band at 0800z, I heard a ZKIAL call and it was not from me and not another African station was audible. From my own observations during afternoon hours, I have heard ZKIAL calls and I am sure they have the band to themselves with the exception of a few Ws, but with no Europeans on the band, I wonder if anyone available with a lot of Ws. I wonder if anyone else has this experience. A good pointer here is the ZKIAL call. ZKIAL is a very common

SAHN worked KV4AA at 0300z also W0WNI/
V06 and the usual W5. SAOU erecting quite
an antenna farm to keep tag on the globe and
reports, all on phone. VK1AF, 11WN, VE8BP
and 11WV, K1K, K1X, K1Y, K1Z, K1AA, K1AB,
W0VU, JAGAK. Hans' timing of the W5 also
0300z-0800z coincides with mist, but he also
adds the South Americans 2300-2200z. Would
be a good idea to have a radio open up
at TRK around 2100z with some excellent
path W and VE signals, but the skip must
too long for the intermediate
Africans. Lists
CR1LU, XE1TD, K0V, W5SCG, ZS6AA,
VR2CG, VK1BA, E1AAM, KX6AY, K1LTI,
K2W, VK1AJ, AP2R, and on phone K1M6A,
K2W, VK1AJ, ZS6F, ZS6BW, K1ADR,
K2W, VK1AJ, ZS6F, ZS6BW, K1ADR,

#1 Me. has lost one of its most ardent supporters in the person of Walter 2AWU, who has decided to return to G. land. I also lose a valued contributor as he was well up in the scoring on this band. Only last month he reported 43 countries worked including W.A.C. I hope that he will be around the break in spring. dx-2AWU will be among the first worked. DX signals very few here and apart from some S9 VK6s and ZLs the only other station heard was HP3FL. The solitary candidate for c.w. was #1 6000. 3AHH also does a lot of c.w. and has a very nice signal from HP3DM. 2AWU also heard HP1PH and HP1JM.

23 Mc. has only one starter for my book and in between times of 50 Mc. operation, Les managed to work on phone Ws 6JLF, 6IWJ, 6KSV, 6DPB, 5IJO, KHEAFS, KH6IB, XE2WE. From various zone notes, some random jottings of DX working are also gleaned. Couldn't we have it all on one page boys?

QSLs have reached the mail boxes of only two contributors this month. 3AHH pulled out LUGSH, ZK2OM, ZBJG, MPK, ZC4IF, JYJRT, VS7LB, OD5AH, while BERS193 perused CR5AH, HSIVR, KQ6AA, IL7L, QK6AH, VR2AS, VS5CM, ZELP, WN7RV, ZCS3, and FB8AX. Of the three latter ones, the WVN was Eric's first Novice QSL. The ZCS came direct and the FB8, which came via REF-W.I.A., was fully filled in by the op of the 1948-50 expedition to Adelle Land and made a total of 216 countries out of 226 heard.

Further to the remarks last month re the "Pacific Islands Monthly Net" and by courtesy of BR5195 is the following. The magazine "P.I.M." is a monthly publication by and for the Pacific Islands Radio Amateurs. It is edited by James Shortall, who has held several editorships including ZK2AK, ZK1AC, VK2ANZ and some ZL calls. Currently a ZL, he imparts much useful information such as does on ZK1BG and ZL1AC. Radio stations in the Pacific include ZK1BH is Trevor Nixon; ZK1AB is Doug Cunningham, Radio Spot, of Cook Island. Licensed FOI stations are 6RAB AC, AD, AG, AH, AI, AJ, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UU, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

At any time now, I'm going to stick my neck out by saying that the Easter Island excursion has not as yet taken place, so I'll content myself by saying that I haven't heard them yet.

A.O.C.P. CLASS

The Victorian Division A.O.C.P. Class will commence on Thursday, 30th July, 1953. Morse and Regulations are held on Monday and Theory on Thursday evenings from 8 to 10 p.m. Persons desirous of being enrolled should communicate with the Secretary W.I.A., Victorian Division, 191 Queen Street, Melbourne (Phone FJ 6997 from 10 a.m. to 4 p.m.), or the Class Manager on either of the above evenings.

DX C.C. LISTING

PHONE				
Call	No.	Ctr.	Call	No. Ctr.
VKAR	..	12	VKAWJ	.. 17
VKBZB	..	3	VKARW	.. 23
VKSEE	..	10	VKAPJ	.. 8
VKBRU	..	2	VK4DO	.. 20
VKBJD	..	1	VK3ATN	.. 20
VKAKS	..	9	VK3MS	.. 24
VK3VW	..	1	VK3HO	.. 24
VK3LN	..	11	VK2ADT	.. 13
VKAFJ	..	21	VK2AHA	.. 15
VK3AWW	..	14	VK6PJ	.. 19
VK3JE	..	7	VK3IG	.. 8
VK6WF	..	16	VK3GG	.. 18
VK3VW	..	6	VK3GK	.. 27
VKABT	..	23		

C.W.

Call	No. Ctr.	Call	No. Ctr.
V3KBZ	6 207	V4KRF	11 121
V4K4H	8 195	V3K5V	39 132
V4K5H	15 196	V3K5V	39 132
V4K4L	9 172	V3K3E	3 122
V4K4F	29 165	V3K2J	25 111
V3K5K	36 150	V3K3H	37 113
V3K5K	15 150	V3K3L	37 113
V3K3N	1 181	V3K3U	12 114
V3K2W	1 181	V3K7J	24 114
V3K2W	29 150	V4K2A	13 115
V3K5A	29 150	V3K7L	17 115
V3K5A	18 147	V4K4R	13 107
V4K4L	38 146	V3K5W	40 108
V3K5L	38 146	V3K5C	40 108
V3K3V	4 143	V3K3A	14 101
V3K5L	5 143	V3K3N	19 101
V3K5L	19 140	V3K2A	22 100
V3K2B	10 128	V3K7K	22 100
V3K2E	21 127	V3K2E	35 100
V3K5H	21 134	V3K2K	41 100

OPEN

Call	No.	Cr.	Call	No.	Cr.
VK1BZ	4	220	VK7LZ	23	116
VK1C	7	120	VK7M	23	116
VK1SE	12	190	VK7ASW	63	110
VK2NS	16	195	VK3JA	43	114
VK6RU	6	183	VK3PAT	14	113
VK6V	13	183	VK3JO	43	114
VK3HG	3	181	VK3PJ	47	111
VK4EL	10	172	VK3MC	40	111
VK4L	13	172	VK3M	40	111
VK2DI	2	170	VK3ZB	34	110
VK3CK	1	167	VK3CZ	25	100
VK4L	13	172	VK3CZ	25	100
VK4DO	15	165	VK3AWN	36	105
VK3AWW	45	150	VK3VN	18	100
VK3AW	24	149	VK4UL	44	100
VK5FL	26	143	VK6PJ	44	100
VK6GW	48	143	VK6PW	50	100
VK6V	13	143	VK6SE	50	100
VK3MC	5	139	VK7KB	30	100
VK6OP	19	137	VK7TI	37	100
VK6V	22	136	VK7V	37	100
VK3HT	41	135	VK7RK	31	100
VK2ADE	28	133	VK4TY	35	100
VK6V	13	132	VK4V	35	100
VK3AHM	20	125	VK5HI	51	100
VK4RW	52	121	VK2AG	39	100
VK3JI	33	119	VK3CT	6	100
VK3CZ	25	118			

Have had quite a string of visitors this month. JABO, JAKR, JAAJ, JATP, s.w.l. Gerry Lane, and JAMZ. Gerry is in real strife. Has had six shots at the exam, and still hasn't cracked it. Not the code either, so a Technician's License won't help.

Didn't hear any argument about my proposal for a set of rules to cover Tx Hunts, so I presume everybody is in agreement (even those who admitted exceeding the speed limit). A committee will now be formed to go into the matter. I hope. Volunteers for the job will please form a queue from the front door of the Radio School, Melbourne Technical College, down Bowen Street thence east along Franklin Street on Wednesday, 1st July. After all names have been listed, the main business of the evening, namely a Swap Night, will take place. Remember, the demand is for small bits and pieces, so bring along those for which you have no use.

I can see the Editor casting eyes on the 5X28 I'm getting from the boiling down project so, so long till next month.

SOUTH WESTERN ZONE

The Zone hook-ups have been poorly attended of late, but were much better on 31st May—seven turning up, the most I have heard for some time. Keep up chaps, don't forget—\$500 Kc. at 1000 hours every Sunday. Conditions have been in and out this month with some very good gigs on 40 and 80 mx. Have not received any notes as yet so have to depend on listening. Some of the Geelong boys were heard here, the highlight being Ed JAKE on 40 and 80 mx, another 144 Mc. chap gone wrong. Had a QSO with Ed on 40 but it ended up on the dog pile, was his best DX up till then. JAEH and JAPK heard on 80 mx, but they forgot their receivers tune the whole band. The regulars JAGD, JAKR, JHC, JII still find time for radio. Don't forget the next Convention early in November at Colac. Gordon JAGV and Jack JAKC will be pleased to supply particulars, so don't be shy chaps.

NORTH EASTERN ZONE

Chas JACW is handicapped with his Ham activities by lack of space in a new home, while Alan JSQ next door has better luck and is building a rig for early use. By this time we hear Doug. JI has been successful with his First Class Ticket. Murray JIIZ is very busy in his professional field, while Peter JAFP

takes time to go Square Dancing. Les JALE is quiet in Shepparton and Johnny JACK is very quiet, but Alex JAT is re-building his rig. SCO in Seymour is using the air waves as is Syd JCI who has been on 2 mx with some success and also been visited by 3RK from Melbourne.

Alan JII is quiet, while Keith JJC has been chasing DX, which field has been well and truly patronised by Ken JKR to the tune of a recently completed W.A.C. Henry JHP is running the Emergency Net in good style, but Howard JYV has still not yet gravitated to 80 mx. JGD from Stanhope is evident on the bands and Hugh JAHF is making a thorough job of Zone Secretary. Tom JTS has been fishing and duck-shooting. Jack JPF and Rex JIR, have no data on hand here. Col JWC is doing well by lining up three new candidates for Associate membership.

FAE NORTH WESTERN ZONE

Activity in the area over the past two months has been centred round the 2 mx band. Chas JTI is the leader in activity and has a 12 element phased rotary beam on 144 Mc. and a two element on 14 Mc. The 2 mx rig is a two stage m.o.p.a. and so far signals have been heard at Red Cliffs where Bill JAJU has a super regen rk hooked to a three element beam: signals reported S-S-9. Ian JAMJ, located at the Aerodrome, has an SCR522 and is busy adapting same for the band. Any week-end there is great activity at JTI's shack with the gang landing in with super regens for calibration and check, etc.

Haven't heard from Frank JFC at Ouyen for some time, but gather he is on the bands working a bit of DX once in a while. Noel JAUG bus fitting prop. motor to rotary and making small portable for 40 mx work. Jim JAFP appears on the band and has now mastered the faults he had earlier with his rig.

Two twisting Hams dropped in on us last month, namely JTT and JTY. Sorry you chaps didn't get round more of the gang whilst in this district. Graeme JSN still inactive, but we have hopes of hearing him in the near future. Harry JIIF informs me he is far too busy and just can't get round to Ham Radio at the moment. Max JGGZ slowly assembling converter for 2 mx and is heard occasionally on 40 mx. Tx and four element rotary on 2 mx and signals have been heard at JTI last month.

GEELONG AMATEUR RADIO CLUB

The club rooms were crowded at the first meeting in May. A visitor was Mr. C. Manning, a well known man in radio. He was on a routine visit to the club and was welcomed by the President. A very fine lecture was given by J. Beckingham, A.M.I.R.E., whose subject was entitled, "Getting the most from Modern Electronics". He used the blackboard to illustrate his lecture. Many questions were asked and answered. The club also organised a technical film night for its members. Among the films shown were "Antennae", "Radio and Television", "How Television Works", the programme lasting 2½ hours.

QUEENSLAND

Our May meeting saw John 4FT take over the unenviable position as our Chairman, doing the job like a veteran, assisted in a few instances by Vince 4VJ. The old stalwarts were there, plus Jack 4SR from Ipswich and 4WM from Quilpie. The meeting went with a swing accompanied by a background noise from the Dyer Show, which was on at the time of the building. Harold 4HM was present, haven't seen your face around for sometime Hal.

4WM gave an address on the trials and tribulations of Amateur Radio up Quilpie way. Lively interest was taken in the items of business. Including the lack of lecturers. So if anyone has the urge to air their pet subject, be what it may, he will be welcomed with open arms. Seems 4WI is still looking for a new home as Ray 4LF is unable to cope with the job owing to lack of space and other troubles. Anyone interested please contact the Secretary.

May will be a month to remember owing to the poor conditions prevailing. Most nights one could tune the rx over any band and hear very few signals. 1 Mc. seemed to be the best, with quite a few Interstate signals. Fred 4FB keeps this band alive from VK4, though I did hear him on 14 Mc. once. Heard 4WH being called but could not hear him here. Have heard DX on this band when others are washed out. Worked W8 with the 5 watts and also two new countries, a ZK1 and George 8GN on Norfolk Island, who put a very nice signal in here with 15 watts. It's there if one can put up with the Commercials.



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On 14 Mc. the Americans come through of an afternoon and occasionally on phone at night with an European or two with John 4RT after them. The c.w. end is a complete blank after 6 p.m. Except for Frank 42M and Jim 40B, nothing heard here.

John 4PT has been working across town with his "Heath Robinson" modulator, he screen modulates with the audio end of his rx. One way of saving an expensive modulator. Bill 4YA has sprouted a 2 element beam in his back yard, and getting some f.b. reports. Keith 4KS has had a "bumsman's holiday" painting his house with little time for DX hunting. Clive 4CC does a bit of eurbushin, both c.w. and phone, and I'm still waiting to hear his findings on the all-wave beam. How Clive? Vince 4VJ heard without his s.s.c. and an occasional peep from Aussie 4TN and John 4FP. Jim 4PL is taken up with the joys of motoring with his motor scooter. I'm expecting to see "Pedro" emblazoned across it one of these days. Seems as if the tx to end all tx's is on ice for the moment. Des 40Z puts a 9 plus signal in here at times.

Les 4NV has been working both 14 and 7 Mc., while my Ipswich spy tells me things up that way are very quiet, only an occasional noise from Leon 4FW and maybe Harold 4FG.

By the time this reaches us, our minds should be turning to the R.D. Contest and means of bringing the trophy to this State. The mighty effort put up by our top scorers in the last R.D. Contest gives one hope, for on calculations only eleven more logs were required, and we would have been able to "drool" over the trophy. The Contest Committee urges everyone to participate even if its for the required few contacts and submit your logs promptly. Last year a few logs were too late to be included and lost us valuable points. So what say, fellows, be in it and we'll win it. And also you will have a lot of fun.

Congratulations must go to 4BT and 4KK on their score in the Ross Hull Memorial Contest. It shows some Queenslanders are on the ball. Must take a look at the v.h.f.s. again some day, even though I'm surrounded by hills. Might hear the man in the moon or the W that has been bouncing signals off him.

And a word of warning, don't believe that guy from the B.B.S.S. My Melbourne spy tells me they were only humouring him, till his warden arrived, by letting him sit in the chair.

NORTHERN DOINGS BY VK4EL

Well news is still scarce from this neck of the woods, with conditions at a "new low". It seems that most of the boys up here don't bother to come on the bands after a preliminary listen around, which I think is a bad practice to get into. I always believe in giving two or three calls on each band to try and raise some of the chaps doing the very same thing, "listening," and believe me it works. Got an FFB on 21 Mc. one day, so remember fellows, don't have everyone listening and no one transmitting, you get nowhere fast that way.

Now for what news is about: Eddie 4WH has made a comeback after being flooded out and has been heard with that copper-plate fist of his on 14 Mc. mostly, seems to get his share of DX as usual. 4HV still keeps 14 Mc. warm in spite of his half element (hi) beam, and works some skeys with old VK1 cobbers and ZLs. Bob 4RW not heard much, but did hear him calling an FFB on 14 Mc., what about some news Bob, to help fill this column? Wally 4RU still very QRL in the business of making eggs at our brand new powerhouse in Townsville, still threatening a come back and 144 Mc. v.h.f. links, etc.

4FH heard on 21 Mc. with a mighty signal and seems to be getting amongst them, has a very f.b. rig when he gets a chance to use it. Now that Doug. 4DB is finished with exams, will be thinking of Ham Radio again. Bill 4BQ has been going places on 21 Mc. and seems the only one of the Mackay gang to be active at all.

Frank 9FN has been very QRL with 6 Mc. National Tx. so not much time for Ham work, still works 14 Mc. at odd times though. Chas. 9WG is mostly on 14 Mc., but did pop up on 3.5 Mc. recently and did quite well too, but QRN very bad up there. Doug. 9DB has returned from leave and re-building the tx; going to make it smaller it seems. Les 9HI is not on much due to being QRL with gardening, etc. 9WK making a comeback and hopes to be on to supply some notes for next month's issue. Geoff 9CW is the most active up in N.Q. and can be heard mostly on 21 Mc. which seems to be his favourite band; often heard knocking 'em over, lots of Europeans, etc.; now using 1JK which has the natives puzzled as to why he should have a canoe, way up atop a pole and upside down at that, hi!

4EL, well I'm still active on all bands, but not much to report for this month. 21 Mc. still the best bet for DX on phone, and 7 Mc. for c.w. Tests with 21 Mc. Lazy H show it to be one of the best yet tried. What about some info. for next month's column?

SOUTH AUSTRALIA

The monthly general meeting of the VK3 Division was held as usual in the club rooms to an above normal gathering of members who had apparently come along to hear Clem Tillbrook. 9GL lecture on v.h.f. Techniques. It is my usual practice at this point to launch out on a detailed description of the lecture for the night, but as I glimpsed from the motor car of Hal SAW prior to entering the club rooms, a gangster-looking individual sidled up to me and said in a menacing voice, "Say Bud, this lecture tonight is my pigeon, it is a v.h.f. lecture, and as I am the v.h.f. scribe for VK5, and very short of material, if you value your health, then lay off." Giving him a look faintly resembling Bulldog Drummond, I said in a deep and resonant voice, "On your way, snail. I have my duty to my readers and nothing you can say or do will shake me from my resolve to write up this lecture." To cut a long story short, if you look on the v.h.f. page in this magazine you will see the details of the lecture given by Clem, and it is very lucky for Gordon SXU that I decided to ignore him. After all, how could I do otherwise, he has a wife and eleven children, to say nothing of the fact that he is going to give me a couple of T88s for my 280 Mc. tx, I hope!

Opportunity was taken of the fact that Frank 5DW was at the meeting, to present him with a slight token of the esteem that the VK3 Division had for him and also to show him that we were sorry that he was leaving us for good to return to the State of forgotten men, VK6. Frank was a staunch councillor and member of VK5 and our definite loss will be VK6's gain. Best of luck Frank.

Among the visitors were Messrs. E. Miller, E. McKings, E. Barnden, R. Furth, and R. Roper 5PU, who is gradually getting back on his feet after a bout with polio, and last, but by no means least, Rob Gurr, 5RG, ex-1RG. Rob has no respect for the President because when I said to him, "Don't forget my QSL," he very rudely said, "You'll get it when I

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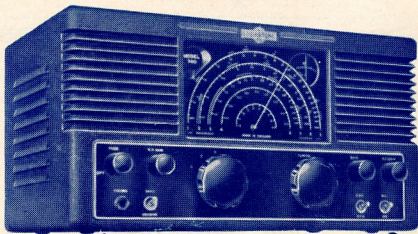
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